

**Notice of Allowability****Application No.**

09/673,687

**Applicant(s)**

KNAUSS, UWE

**Examiner**

Pedro J. Cuevas

**Art Unit**

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on December 27, 2002.
2. ☒ The allowed claim(s) is/are 1-10.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of the:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
(a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☒ CORRECTED DRAWINGS must be submitted.  
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached  
1) ☐ hereto or 2) ☐ to Paper No. \_\_\_\_\_.  
(b) ☒ including changes required by the proposed drawing correction filed 10 May 2002, which has been approved by the Examiner  
(c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the top margin (not the back) of each sheet. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- 1 ☒ Notice of References Cited (PTO-892)  
3 ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
5 ☐ Information Disclosure Statements (PTO-1449), Paper No. \_\_\_\_\_.  
7 ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- 2 ☐ Notice of Informal Patent Application (PTO-152)  
4 ☐ Interview Summary (PTO-413), Paper No. \_\_\_\_\_.  
6 ☐ Examiner's Amendment/Comment  
8 ☒ Examiner's Statement of Reasons for Allowance  
9 ☐ Other

## DETAILED ACTION

### *Allowable Subject Matter*

1. Claims 1-10 are allowed.
2. The following is an examiner's statement of reasons for allowance.

Suzuki discloses the construction of a circuit arrangement for the dynamic control of piezotranslators with energy recovery by means of a single inductive intermediate store which is arranged in series with the piezotranslators as well as by clocked switches, wherein for achieving a predetermined linear voltage characteristic at the piezotranslator, the secondary circuit is designed as a half-bridge consisting of the switches at whose output the inductive intermediate store is arranged in series with the piezotranslator.

Roberts teaches a circuit arrangement wherein:

the switches are formed as MOS transistors, with an external diode being connected in series with the clearance between contacts, and this series connection being bridged by a commutating diode which is oppositely poled to the diode; and

a current sensor for generating a control voltage signal which is proportional to the output current of the final stage is arranged in the secondary circuit of the piezotranslator for controlling the arrangement.

Mamin et al. teaches the construction of a highly sensitive optical directional apparatus for the purpose of sensing the position of a movable member.

The prior art of record, taken alone or in combination, fails to teach the construction of a wired circuit arrangement for the dynamic control of piezotranslators / ceramic solid-state actuators with energy recovery by means of a single inductive intermediate store as disclosed by:

independent claim 1, having clocked switches connected to an upper or a lower supply voltage, and being externally controlled and operated at a high cycle or switching frequency to alternately connect the intermediate store and the upper or lower supply voltage; and

independent claim 6, having a current control comprising a current sensor connected to the clocked switches and controlling the clocked switches of a half-bridge at a high clock or switching frequency, and wherein a position control is superimposed on the current control.

Dependent claims 2-5 and 7-10 are considered allowable by their respective dependence on allowed independent claims 1 and 6.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pedro J. Cuevas whose telephone number is (703) 308-4904. The examiner can normally be reached on M-F from 8:30 - 6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor R. Ramírez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-1341 for regular communications and (703) 305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Pedro J. Cuevas  
March 24, 2003

*Thomas M. Dougherty*  
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